AMENDMENTS TO THE CLAIMS

Please cancel claim 90, amend claims 1, 4, 6, 7, 17, 18, 34, 36-40, 78-87, 89, 91-93, 114 and 115, and add new claims 116-124. Below are the now-pending claims.

1. (Currently Amended) A portable card adapted to be used in a card processing system having a data processing station comprising:

a data storage device adapted to interact with a data processing station when ~~a~~ the portable card and ~~a~~ the data processing station are moved relative to each other, said data storage device including

a substrate having a predetermined shape;

at least one layer of high density, high coercivity magnetic material for storing magnetic signals; and

a relatively hard, abradeable protective coating formed on said magnetic material layer and being selected to have a thickness between a maximum thickness which would materially attenuate magnetic signals passing between said magnetic material layer and a transducer and a minimum thickness enabling said protective coating to be abraded by usage in an ambient natural atmosphere operating environment for removing therefrom a known quantity of the protective coating.

2. (Original) The portable card of claim 1 wherein said at least one magnetic material layer is a thin film layer of high density, high coercivity magnetic material having a predetermined magnetic field orientation for storing data.

3. (Original) The portable card of claim 1 wherein protective coating has at least one layer which includes a magnetically permeable, magnetically saturable material.

4. (Currently Amended) The portable card of claim 1 wherein protective coating has at least two layers, wherein a first one of said at least two layers includes a magnetically permeable, magnetically saturable material and the ~~other~~ the second one of said at least two layers is a non-magnetic friction reducing layer formed on said first one of said layers.

5. (Original) The portable card of claim 1 wherein said at least one magnetic material layer is formed of a high density, high coercivity magnetic material having a predetermined magnetic field orientation and wherein said protective coating has at least one layer which includes a magnetically permeable, magnetically saturable material and wherein said data storage device further includes

a non-magnetic material layer positioned between the protective coating and said at least one magnetic material layer, said magnetically permeable, magnetically saturable material being responsive through said non-magnetic layer to predetermined magnetic field orientation to produce a magnetic image field in a direction opposite to said predetermined magnetic field orientation.

6. (Currently Amended) The portable card of claim 1 wherein said at least one magnetic material layer is formed of a high density, high coercivity magnetic material having a predetermined magnetic field orientation and wherein said protective coating has at least two layers, wherein ~~said~~ a first one of said at least two layers includes a magnetically permeable, magnetically saturable material and the ~~other~~ the second one of said at least two layers is a non-magnetic ~~abrasion~~ friction reducing layer formed on said first one of

said at least two layers and wherein said data storage device further includes

a non-magnetic material layer positioned between the protective coating and said at least one magnetic material layer, said magnetically permeable, magnetically saturable material being responsive through said non-magnetic layer to predetermined magnetic field orientation to produce a magnetic image field in a direction opposite to said predetermined magnetic field orientation.

7. (Currently Amended) The portable card of claim 1 wherein said protective coating has an outer surface that is cleanable.

8. (Original) The portable card of claim 1 wherein said substrate has two surfaces and said protective coating is applied to at least one of said two surfaces.

9. (Original) The portable card of claim 1 wherein said substrate has two surfaces and said protective coating is applied to at least one of said two surfaces and wherein said data storage device is located on the other of said two surfaces and said protective coating is applied to at least said data storage device.

10. (Original) The portable card of claim 1 wherein said substrate has two surfaces and wherein said data storage device is located on one of said two surfaces and said protective coating is applied to at least said data storage device.

11. (Original) The portable card of claim 1 having an obverse side and a converse side and wherein said substrate has two surfaces and wherein said data storage device is located on

one of said two surfaces and said protective coating is applied to each of said obverse side and converse side.

12. (Original) The portable card of claim 1 wherein said protective coating has an outer surface and further comprises

a bonded lubricant layer formed on said outer surface and having a thickness which is less that the thickness of said protective coating.

13. (Original) The portable card of claim 1 wherein said protective coating thickness is in the range of about 700 Angstroms to about 1050 Angstroms.

14. (Original) The portable card of claim 1 wherein said protective coating thickness includes two substantially parallel layers one of which is formed of a magnetically permeable, magnetically saturable material having a thickness in the range of about 50 Angstroms to about 750 Angstroms and the other of which is a diamond-like carbon layer having a thickness in the range of about 150 Angstroms to about 300 Angstroms.

15. (Original) The portable card of claim 14 wherein said protective coating thickness is in the range of about 700 Angstroms to about 1000 Angstroms.

16. (Original) The portable card of claim 15 wherein said protective coating thickness is about 550 Angstroms.

17. (Currently Amended) The portable card of claim 1 wherein said ~~protective coating thickness includes one layer which is formed of a~~ magnetically permeable, magnetically saturable material ~~having~~ has a thickness in the range of about

50 Angstroms to about 750 Angstroms and wherein said non-magnetic material layer has a thickness in the range of about 20 Angstroms to about 150 Angstroms.

18. (Currently Amended) The portable card of claim ~~1~~ 5 wherein said protective coating thickness includes two substantially parallel layers a first one of which ~~is formed of a~~ the magnetically permeable, magnetically saturable material, ~~having~~ which has a thickness in the range of about 50 Angstroms to about 750 Angstroms, and the ~~other~~ second of which is a diamond-like carbon layer on the layer of the magnetically permeable, magnetically saturable material and having a thickness in the range of about 150 Angstroms to about 300 Angstroms, and wherein said nonmagnetic material layer has a thickness in the range of about 20 Angstroms to about 150 Angstroms.

19. (Original) The portable card of claim 1 wherein said protective coating thickness includes two substantially parallel layers one of which is formed of a magnetically permeable, magnetically saturable material having a thickness about 400 Angstroms and the other of which is a diamond-like carbon layer having a thickness about 150 Angstroms.

20. (Original) The portable card of claim 1 wherein said protective coating thickness includes two substantially parallel layers one of which is formed of a magnetically permeable, magnetically saturable material having a thickness about 400 Angstroms and the other of which is a diamond-like carbon layer having a thickness about 150 Angstroms and wherein said non-magnetic material layer has a thickness in the range of about 20 Angstroms to about 150 Angstroms.

21. (Original) The portable card of claim 1 wherein said protective coating is adapted to interface with and be responsive to a data processing station when said substrate and data processing station are moved relative to each other to position said substrate proximate said data processing station to enable data flow therebetween.

22. (Original) The portable card of claim 1 wherein said substrate is moved relative to said data processing station.

23. (Original) The portable card of claim 1 wherein said data processing station is moved relative to said substrate.

24. (Original) The portable card of claim 1 wherein said data processing station and said substrate are moved relative to each other.

25. (Original) The portable card of claim 1 wherein said substrate is substantially planar and generally rectangular in shape and said data storage device is generally rectangular in shape.

26. (Original) The portable card of claim 25 wherein said substantially planar and generally rectangular shaped substrate including said data storage device is transported past a data processing station.

27. (Original) The portable card of claim 1 wherein said substrate is substantially planar and generally rectangular in shape and said data storage device is generally circular in shape.

28. (Original) The portable card of claim 27 wherein said generally circular shaped data storage device is fixedly mounted within said substantially planar and generally rectangular shaped substrate.

29. (Original) The portable card of claim 28 wherein said substantially planar and generally rectangular shaped substrate including said generally circular shaped data storage device data storage device is rotable proximate a data processing station.

30. (Original) The portable card of claim 27 wherein said generally circular shaped data storage device is rotatably mounted within said substantially planar and generally rectangular shaped substrate.

31. (Original) The portable card of claim 30 wherein said substantially planar and generally rectangular shaped substrate including said generally circular shaped data storage device data storage device is positioned proximate a data processing station and said generally circular shaped data storage device data storage device is rotated relative thereto.

32. (Currently Amended) The portable card of claim 2 wherein said thin film layer of magnetic material has an areal density of about 2 megabits per sq. in. to about 10 gigabits per sq. in.

33. (Original) The portable card of claim 1 wherein said transducer is an inductive head.

34. (Currently Amended) The portable card of claim 33 wherein said thin film layer of high density, high coercivity magnetic material has an areal density of about 2 megabits per sq. in. to about 20 megabits per sq. in.

35. (Original) The portable card of claim 1 wherein said transducer is a thin film head.

36. (Currently Amended) The portable card of claim 2 wherein said transducer is a magnetoresistive head and said thin film layer of high density, high coercivity magnetic material has an areal density of about 20 megabits per sq. in. to about 200 megabits per sq. in.

37. (Currently Amended) The portable card of claim 2 wherein said transducer is a giant magnetoresistive (GMR) head and said thin film layer of high density, high coercivity magnetic material has an areal density of about 20 megabits per sq. in. to about 10 gigabits per sq. in.

38. (Currently Amended) The portable card of claim 2 wherein said thin film layer of high density, high coercivity magnetic material has a predetermined magnetic field orientation that is substantially perpendicular to at least one surface of said substrate.

39. (Currently Amended) The portable card of claim 2 wherein said thin film layer of high density, high coercivity magnetic material has a predetermined magnetic field orientation that is substantially parallel to a data processing station.

40. (Currently Amended) The portable card of claim 2 wherein said thin film layer of high density, high coercivity magnetic material has a predetermined magnetic field orientation that is at an acute angle to a data processing station.

41. (Original) A portable card of claim 40 wherein the acute angle is in a range of between about 15 degrees and about 45 degrees from a vertical axis to said substrate.

42. (Original) The portable card of claim 2 wherein said at least one thin film layer of high density, high coercivity magnetic material is a sputtered layer.

43. (Original) The portable card of claim 2 wherein said at least one thin film layer of high density, high coercivity magnetic material is a platted layer.

44. (Original) The portable card of claim 2 wherein said at least one thin film layer of high density, high coercivity magnetic material is an oxide layer.

45. (Original) The portable card of claim 2 wherein said at least one thin film layer of high density, high coercivity magnetic material is a web coated layer.

46-73. (Cancelled)

74. (Original) A data storage device comprising

at least one layer of high density, high coercivity magnetic material for storing data; and

a relatively hard, abradeable protective coating formed on said magnetic material layer and being selected to have a

thickness between a maximum thickness which would materially attenuate magnetic signals passing between said magnetic material layer and a transducer and a minimum thickness enabling said protective coating to be abraded by usage in an ambient natural atmosphere operating environment for removing therefrom a known quantity of said protective coating material.

75. (Original) The data storage device of claim 74 wherein said protective coating is of a diamond-like hardness forming a bendable, abradeable protective coating.

76. (Original) The data storage device of claim 74 wherein said protective coating is formed of a magnetically permeable, magnetically saturable material and the known quantity of magnetically permeable, magnetically saturable material removed by usage is to that minimum thickness thereof which is capable of supporting magnetic flux density of a reading signal.

77. (Original) The data storage device of claim 74 wherein said protective coating is formed of a magnetically permeable, magnetically saturable material and the known quantity of magnetically permeable, magnetically saturable material removed by usage is to a thickness at which the magnetically permeable, magnetically saturable material commences to emit a detectable quantity of magnetic flux leakage.

78. (Currently Amended) The data storage device of claim 74 wherein the high density, high coercivity magnetic material ~~layer~~ is formed of a substantially isotropic material.

79. (Currently Amended) The data storage device of claim 78 wherein the isotropic material is a magnetic thin film ~~allow~~ alloy including platinum.

80. (Currently Amended) The data storage device of claim 74 wherein the high density, high coercivity magnetic material is formed of an anisotropic material.

81. (Currently Amended) The data storage device of claim 80 wherein said high density, high coercivity magnetic material has a predetermined field of orientation for storing magnetic signals.

82. (Currently Amended) The data storage device of claim 80 wherein the high density, high coercivity magnetic material layer has at least one surface and said predetermined field of orientation is in a direction substantially parallel to said one surface.

83. (Currently Amended) The data storage device of claim 80 wherein the high density, high coercivity magnetic material layer has at least one surface and said predetermined field of orientation is in a direction substantially perpendicular to said one surface.

84. (Currently Amended) The data storage device of claim 80 wherein the high density, high coercivity magnetic material layer has at least one surface and said predetermined field of orientation is in a direction at a predetermined angle to said one surface.

85. (Currently Amended) The data storage device of claim 80 wherein the high density, high coercivity magnetic material layer has at least one surface and said predetermined field of orientation is in a direction at an oblique angle to said one surface.

86. (Currently Amended) The data storage device of claim 74 wherein said ~~.~~ protective coating has at least one layer which includes a magnetically permeable, magnetically saturable material.

87. (Currently Amended) The data storage device of claim 74 wherein said protective coating has at least two layers wherein a first one of said at least two layers includes a magnetically permeable, magnetically saturable material and the ~~other~~ the second of said at least two layers is a non-magnetic friction reducing layer formed on said first one of said layers.

88. (Original) The data storage device of claim 74 wherein said data storage device further comprises:

a bonded, cleanable lubrication layer formed on said protective coating.

89. (Currently Amended) A data storage device comprising:

a substrate having at least one surface;

at least one high density magnetically coercive material layer disposed on said substrate for storing magnetic signals with the coercive material axis of magnetization oriented in a predetermined direction relative to said at least one surface of said substrate; ~~and~~

a bendable, diamond like hardness protective coating having a thickness which allows passage of magnetic signals in an

ambient natural atmospheric operating environment through said protective layer and between said at least one high density magnetically coercive material layer and a transducer, said protective layer being formed of a material which resists at least one of chemical, magnetic and mechanical degradation of the data storage device; and

at least one non-magnetic material layer disposed on said substrate and between said protective coating and said at least one high density magnetically coercive material layer for defining an exchange break layer.

90. (Cancelled)

91. (Currently Amended) The data storage device of claim ~~90~~ 89 wherein said substrate is a non-magnetic substrate and said protective coating includes

a magnetically permeable, magnetically saturable material disposed on said substrate and being responsive through said exchange break layer to the coercive material axis of magnetization in said predetermined direction to produce a magnetic image field in a direction opposite to said predetermined direction.

92. (Currently Amended) The data storage device of claim ~~90~~ 89 wherein said protective coating includes said magnetically permeable, magnetically saturable material as a separate independent layer disposed on said exchange break layer.

93. (Currently Amended) The data storage device of claim ~~90~~ 89 wherein said protective coating includes a non-magnetic friction resisting layer as a separate independent layer

disposed on said magnetically permeable, magnetically saturable material layer.

94. (Original) The data storage device of claim 89 wherein said predetermined direction is orientated substantially parallel to said at least one surface of said substrate.

95. (Original) The data storage device of claim 89 wherein said predetermined direction is orientated at an acute angle to said at least one surface of said substrate.

96. (Original) The data storage device of claim 89 wherein said predetermined direction is orientated substantially perpendicular to said. at least one surface of said substrate.

97. (Original) A magnetically encoded card comprising

a non-magnetic substrate having at least one surface,

a thin film, high density magnetically coercive material disposed on said substrate for storing magnetic signals with the coercive material axis of magnetization oriented in a predetermined direction relative to said at least on surface of said substrate;

a non magnetic material disposed on said substrate for defining an exchange break layer; and

a relatively hard, bendable, abradeable protective coating formed on said magnetic material layer and being selected to have a thickness between a maximum thickness which would materially attenuate magnetic signals passing between said magnetic material layer and a transducer and a minimum thickness enabling said protective coating to be abraded by usage in an ambient natural atmosphere operating environment for removing therefrom a known quantity of the protective coating.

98. (Original) The magnetically encoded card of claim 97 wherein said protective coating is formed on said substrate in a direction substantially normal to said exchange break layer, said protective coating including a magnetically permeable, magnetically saturable material disposed on said substrate and being responsive through said exchange break layer and said magnetically saturable material to the coercive material axis of magnetization to produce a magnetic image field in a direction to facilitate passage of magnetic signals in an ambient natural atmospheric operating environment through said exchange break layer and said magnetically saturable material, said coercive material having said axis of magnetization in said predetermined direction.

99. (Original) The magnetically encoded card of claim 97 wherein said protective coating includes said magnetically permeable, magnetically saturable material as an independent layer disposed on said substrate.

100. (Original) The magnetically encoded card of claim 97 wherein said protective coating includes a non-magnetic friction resisting material as a separate layer disposed on said magnetically permeable, magnetically saturable material.

101. (Original) The magnetically encoded card of claim 97 wherein said predetermined direction is orientated substantially parallel to said at least one surface of said substrate.

102. (Original) The magnetically encoded card of claim 97 wherein said predetermined direction is orientated at an acute angle to said at least one surface of said substrate.

103. (Original) The data storage device of claim 97 wherein said predetermined direction is orientated substantially perpendicular to said at least one surface of said substrate.

104. (Original) The magnetically encoded card of claim 97 wherein the magnetically coercive material is at least 1,000 Oersteds and wherein said magnetically permeable, magnetically saturable material is less than about 100 Oersteds.

105-111. (Cancelled)

112. (Original) A data storage device comprising

at least one thin film layer of high density, high coercivity magnetic material having a predetermined magnetic field orientation for storing data; and

a relatively hard, abradeable protective coating formed on said magnetic material layer and being selected to have a thickness between a maximum thickness which would materially attenuate magnetic signals passing between said at least one thin film layer and a transducer and a minimum thickness enabling said protective coating to be abraded by usage in an ambient natural atmosphere operating environment for removing therefrom a known quantity of the protective coating, said data storage device being adapted to interface with and be responsive to a transducer when said data storage device and said transducer are moved relative to each other to enable data flow therebetween.

113. (Original) The data storage device of claim 111 wherein said protective coating has at least one layer which

includes a magnetically permeable, magnetically saturable material.

114. (Currently Amended) The data storage device of claim 112 wherein said protective coating has at least two layers wherein a first one of said at least two layers includes a magnetically permeable, magnetically saturable material and the second ~~other~~ of said at least two layers is a non-magnetic abrasion resisting layer formed on said first one of said at least two layers.

115. (Currently Amended) The data storage device of claim 112 wherein said data storage device further comprises

a bonded, cleanable lubrication layer applied to an outer surface of said protective coating, said bonded, cleanable lubrication layer having a thickness which is less than the thickness of said protective coating.

116. (New) A data card comprising:

a rectangular-shaped substrate including opposed obverse and converse surfaces, the substrate being formed of a plastic material; and

a circular shaped magnetic data storage device rotatably mounted within said rectangular-shaped substrate between the obverse and converse surfaces and accessible through one of the obverse and converse surfaces.

117. (New) The data card of claim 116, further comprising an integrated circuit coupled to the substrate.

118. (New) The data card of claim 117, wherein the data storage device comprises a high density, high coercivity magnetic material layer and an overlying protective layer.

119. (New) The data card of claim 118, wherein the protective coating has at least one layer which includes a magnetically permeable, magnetically saturable material.

120. (New) The data card of claim 118, wherein the protective coating has at least two layers, wherein a first one of said at least two layers includes a magnetically permeable, magnetically saturable material and the second one of said at least two layers is a non-magnetic friction reducing layer formed on said first one of said layers.

121. (New)) The portable card of claim 118, wherein said protective coating has at least one layer which includes a magnetically permeable, magnetically saturable material and wherein said data storage device further includes

a non-magnetic material layer positioned between the protective coating and the magnetic material layer, said magnetically permeable, magnetically saturable material being responsive through said non-magnetic layer to predetermined magnetic field orientation to produce a magnetic image field in a direction opposite to said predetermined magnetic field orientation.

122. (New) The data card of claim 116, wherein the data storage device comprises a high density, high coercivity magnetic material layer and an overlying protective coating.

123. (New) The data card of claim 122, wherein the protective coating has at least two layers, wherein a first one of said at least two layers includes a magnetically permeable, magnetically saturable material and a second one of said at least two layers is a non-magnetic friction reducing layer formed on said first one of said layers.

124. (New)) The portable card of claim 122, wherein said protective coating has at least one layer which includes a magnetically permeable, magnetically saturable material and wherein said data storage device further includes

a non-magnetic material layer positioned between the protective coating and said magnetic material layer, said magnetically permeable, magnetically saturable material being responsive through said non-magnetic layer to predetermined magnetic field orientation to produce a magnetic image field in a direction opposite to said predetermined magnetic field orientation.